

Table of Contents

Session 1 Guidance, Navigation and Control 1

1F1: Promoting Autonomous Control in Civil Transports -Proposal for the Flight Command System

Junichiro Sumita -----1

1F2: An Improved Neural Network Guidance Law Using a Network Pruning Technique

Ki-Hoon Lee, Han-Lim Choi, Min-Jea Tahk and Hyo-Choong Bang -----5

Invited Lectures 1

IL1: Research and Future Directions on Smart Structures and Materials in Aerospace Vehicles

Anna-Maria R. MaGowan -----9

Session 2 Guidance, Navigation and Control 2

1F3: A Game Theoretic Approach to Robust Optimal Attitude Stabilization of a Spacecraft with External Disturbances

Yonmook Park, Min-Jea Tahk and Hyochoong Bang ----- 17

1F4: Aircraft Control System Design Using Evolutionary Algorithm for Noisy Function

Chang-Su Park, Hyo-Choong Bang and Min Jea Tahk ----- 21

1F5: Robust Control Design for Nonlinear Flight Control System with Parameter Uncertainties

Ari Legowo, Hiroshi Okubo, Keiichi Muramatsu and Hiroshi Tokutake ----- 25

1F6: The Aspect of Subjectivity in Flight Mechanics

M.R. Ananthasayanam ----- 29

1F7: Adaptive Reconfigurable Flight Control System Based on Recursive System Identification

Sungpil Kim, Youdan Kim, Hee-Seob Kim and Changho Nam ----- 33

Session 3 Guidance, Navigation and Control 3

1F8: Robust Fault Tolerant Control Systems Using Adaptive Schemes

Chungil Ahn and Youdan Kim ----- 37

1F9: A new multiple model estimation for systems with switching models

Sang Jin Shin and Taek Lyul Song ----- 41

1F10: The Activation-only VSIMM

Seong Hee Choi and Taek Lyul Song ----- 45

1F11: A Preliminary Study on The Flight Control System of The Stratospheric Platform

Fumiaki Imado, Tsunehisa Iwanami, Akira Tada, Shuuichi Sasa and Kenya Harada ----- 50

1F12: Positioning Accuracy of the Laser Tracking System for Flight Testing

Hamaki Inokuchi and Takeshi Fujiwara ----- 54

International Session Special Lectures

ISL1: Development of KTX-1 and its Spin Characteristics

Taehwan Cho ----- 58

ISL2: Simulation of Rotor Flowfields in Hover Using Unstructured Adaptive Meshes

Oh Joon Kwon and Hee Jung Kang ----- 65

Session 4 Development

2F1: Aerodynamic Analysis Concept of High Speed Flight Demonstration Phase II

Makoto Ueno, Yukimitsu Yamamoto, Masaaki Yanagihara and Yoshikazu Miyazawa ----- 71

2F2: Development of a Small Canard Aircraft

Seokmin Ahn, Keunbae Kim, Jinwon Kim and Eungyai Kim ----- 75

Session 5 Fluid Dynamics & Propulsion

2F3: Experimental and Computational Studies on Supersonic Mixing for Airbreathing Propulsion

Shigeru Aso, Shingo Kawano and Kei Inoue ----- 79

2F4: Experimental Investigation of Axisymmetric Nozzle-Vanes-Plug TVC Arrangement

A. A. Hashem and W. A. Aissa ----- 83

2F5: A Study of 2-D Turbine Blade Profile to Minimize the Pressure Loss

Soo-Yong Cho, Eui-Soo Yoon and Bum-Seog Choi ----- 87

2F6: Flow behavior around square section shape model due to drag treatment

Anang Cakrawala and Akira Umemura ----- 92

Session 6 Fluid Dynamics 1

2F7: Control of Flow Separation on Bluff Bodies at Transonic Speed

Thombi Layukallo and Yoshiaki Nakamura ----- 96

2F8: Suppression of Edge-Tones in High-Speed Flows

Mohammed K. Ibrahim, Tsukasa Souma and Yoshiaki Nakamura ----- 100

2F9: Numerical Study of Hypersonic Blunt Body with Ablation Jets

Taizo Matsuura, Kenzo Kaga and Toshi Fujiwara ----- 104

2F10: Numerical Simulations of Leading-Edge Separation Vortices

Toshiyuki Horie, Kozo Fujii and Naozo Hattori ----- 108

Session 7 Guidance & Control, Structure

3F1: Nonlinear Flight Control Based on Model Inversion Using Neural Networks

Hyunjae Lee, ChangHo Hong and Hyochoon Bang ----- 112

3F2: Development of a Medium Size 3-Axis Rate Table

Choonbae Park, Keeyoung Choi and Jongjin Kim ----- 116

3F3: Quantitative Models on Corrosion Fatigue Crack Growth Rates in Metals

Sang Shik Kim, Youngil Seo and Sugeun Lim ----- 120

3F4: Development of Heat Treatment Techniques for Deformation Control of Landing Gears

Sun-Ki Lyu, Tae-Hyeon Nam and Su-Gun Lim ----- 127

Invited Lectures 2

IL2: Progress and Challenges in Sonic Boom Research

Christine M Darden ----- 131

Special Lectures 3

SL3: The Extraordinary Mission of Mars Global Surveyor

Arden Albee ----- 139

Session 8 Fluid Dynamics 2

3F5: Mechanism of Flow Changes with Length-to-Depth Ratio in Cavity Flow

J. Zhang, E. Morishita, T. Okunuki and H. Itoh ----- 144

3F6: Response of the Flow Around a Circular Cylinder to Its Rotational Oscillation

Hessameddin Ebnezzeddin Hamidi and Yoshiaki Nakamura ----- 148

3F7: Inviscid Flow Simulation using Cartesian Grid Method

Paulus R. Lahur and Yoshiaki Nakamura ----- 152

3F8: Numerical Study of Stable Flame Holding During the Acceleration of a Projectile in a Ram Accelerator

Ciheng Zhang and Shiro Taki ----- 155

3F9: Optimization of Flapping Wing Motion

Keiichi Ito and Shinji Suzuki ----- 159

Session 9 Structure & Aeroelasticity

3F10: Further Examination of the Nonlinear Math Model for Transonic Limit Cycle

Flutter by a Continuation Method

Hiroshi Matsushita, Takafumi Miyata, Lasse Engbo Christiansen and Tue Lehn-Schiøler ----- 163

3F11: Vibration and Flutter Analysis of Composite Panels with Shape Memory Alloy

Fibers at Elevated Temperatures

Jae-Sang Park, Ji-Hwan Kim and Sung-Hwan Moon ----- 167

3F12: A simplified calendar fatigue life prediction approach for aircraft structures

Bintuan Wang ----- 171